

WHAT IS CLAIMED IS:

1. A method of manufacturing an optical device,

2 comprising:

3 forming a mesa structure from said substrate, said mesa
4 structure having a cladding layer located thereover; and

5 isolating an end of a first layer from said cladding layer
6 by encapsulating said end between second and third layers
7 located adjacent said mesa structure.

2. The method as recited in Claim 1 wherein said first layer

2 comprises indium phosphide and said encapsulating includes forming
3 said first layer having said isolated end in the presence
4 phosphorous trichloride.

3. The method as recited in Claim 1 wherein said second and

2 third layers comprise indium phosphide and said encapsulating
3 includes forming said second and third layers in an atmosphere
4 substantially free of phosphorous trichloride.

4. The method as recited in Claim 1 wherein said isolating

2 includes forming said first layer in the presence of a compound
3 containing chlorine or bromine.

5. The method as recited in Claim 1 wherein said second and
2 third layers are doped with an n-type dopant.

6. The method as recited in Claim 1 further including a
2 fourth layer wherein said second layer is located between said
3 first and fourth layers and said fourth layer is doped with a p-
4 type dopant.

7. The method as recited in Claim 1 wherein said first layer
2 is doped with a metal capable of diffusing into said cladding
3 layer.

8. An optical device, comprising:

2 a mesa structure;

3 a cladding layer located over said mesa structure; and

4 first, second, and third layers located adjacent said cladding
5 layer, an end of said second layer encapsulated between said first
6 and third layers and isolated from said cladding layer.

9. The optical device recited in Claim 8 wherein said

2 optical device forms at least a portion of a transmitter.

10. The optical device recited in Claim 8 further comprising

2 a fourth layer located between said mesa structure and said second
3 layer, wherein said first and third layers are doped with an n-type
4 dopant, said second layer is doped with a metal and said fourth
5 layer is doped with a p-type dopant.

11. The optical device as recited in Claim 8 further

2 comprising a contact located over said cladding layer.

12. The optical device as recited in Claim 10 further

2 including a fifth layer located adjacent said mesa structure
3 wherein said fifth layer comprises indium aluminum arsenide.

13. The optical device as recited in Claim 8 wherein said
2 second layer is doped with a metal capable of diffusing into said
3 cladding layer.

14. The optical device as recited in Claim 8 further
2 including a fourth layer located between said mesa structure and
3 said first layer and wherein said first, third and fourth layers
4 extend along a wall of said mesa structure.

15. An optical transmitter, comprising:

2 a radiation source, including:

3 a mesa structure;

4 a cladding layer located over said mesa structure; and

5 first, second, and third blocking layers located adjacent said

6 cladding layer, an end of said second blocking layer

7 encapsulated between said first and third blocking layers and

8 isolated from said cladding layer;

9 an electric source coupled to said radiation source; and

10 a waveguide coupled to said radiation source.

16. The optical transmitter as recited in Claim 15 wherein

2 said second layer is doped with a metal capable of diffusing into

3 said cladding layer.

17. The optical transmitter recited in Claim 15 further

2 comprising a modulator coupled to said radiation source.

18. The optical transmitter recited in Claim 15 wherein said
2 optical transmitter is coupled to a component selected from
3 the group consisting of:
4 a PIN diode;
5 a laser;
6 a modulator; and
7 a photodetector.

19. The optical transmitter recited in Claim 15 further
2 comprising a fourth layer located between said mesa structure and
3 said second layer, wherein said first and third layers are doped
4 with an n-type dopant, said second layer is doped with a metal and
5 said fourth layer is doped with a p-type dopant.

20. The optical transmitter as recited in Claim 19 wherein
2 said first, third and fourth layers extend along a wall of said
3 mesa structure.